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(54) **METHOD AND APPARATUS FOR PRODUCTION OF ^{213}Bi FROM A HIGH ACTIVITY ^{225}Ac SOURCE**

(75) Inventors: **Oleg B. Egorov**, West Richland, WA (US); **Matthew J. O'Hara**, Richland, WA (US)

(73) Assignee: **Battelle Memorial Institute**, Richland, WA (US)

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(52) U.S. Cl. **250/432 PD; 423/2; 423/3**

(58) Field of Search **250/432 PD; 423/2, 423/3, 6, 7**

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Primary Examiner—Kiet T. Nguyen

(74) *Attorney, Agent, or Firm*—Douglas E. McKinley, Jr.

(57) **ABSTRACT**

A method and apparatus for isolating and purifying a ^{213}Bi radioactive isotope from an ^{225}Ac source using a primary column and a primary sorbent which preferentially retains ^{225}Ac over ^{213}Bi when exposed to a compatible solvent in combination with a secondary column having a secondary sorbent which retains ^{213}Bi when exposed to a mixture of the compatible solvent and ^{213}Bi . A "compatible solvent" is a solvent which will preferentially remove ^{213}Bi radioactive isotopes from a primary sorbent without removing ^{225}Ac radioactive isotopes, and then allow ^{213}Bi radioactive isotopes removed from the primary sorbent to be retained on a secondary sorbent, without having to dilute or otherwise chemically or physically modify the compatible solvent in between exposure to the primary and secondary sorbents.

39 Claims, 5 Drawing Sheets

